the Equisetales and Sphenophyllales; papers on Jurassic floras of France; and especially his recent work, in part in collaboration with M. Tison, on the flowers of the Gnetales and the systematic position of the group. Lignier's activities ranged over a wide field; he was a botanist of marked originality, a generous friend, and a man imbued with the true scientific spirit. It was through his persistence that a botanical laboratory was built at Caen, and under his able direction the University became an important centre of botanical research. A. C. S.

NOTES.

At the ordinary scientific meeting of the Chemical Society, held at Burlington House on Thursday, April 6, Dr. Alexander Scott, president, announced that the council had decided that an extraordinary general meeting of the society should be summoned for Thursday, May 11, to consider the question of the removal of the names of the nine alien enemies from the list of honorary and foreign members of the society.

Replying to a question relating to the inventions branch of the Ministry of Munitions, Dr. Addison said, in the House of Commons on April 10:—The Director-General of Munitions Design is General Du Cane. His salary is 2000*l.* per annum. The Superintendent of Research is Colonel R. A. Craig. His salary is 850*l.* per annum. The present salaries of his staff range from 750*l.* per annum to 240*l.* per annum. It is not desirable to give their names. In addition to the staff of the Superintendent of Research, a number of most eminent chemists and other men of science in the country have for many months given their services to the Ministry of Munitions without payment, and have rendered invaluable assistance to the country.

Sir Colin Campbell Scott-Moncrieff, whose death occurred on April 6, in his eightieth year, was a man of distinguished parts, who achieved reputation in three several directions, as a soldier, as an engineer, and as an administrator. Born in 1836, his military career commenced at the age of twenty, when he entered the Bengal Engineers as a second lieutenant. He was engaged in the suppression of the Indian Mutiny, for which he received the medal. In 1883 he retired with the rank of Colonel. From that date he devoted himself to the inauguration and execution of engineering projects of a utilitarian character, connected in the first instance with the agricultural development of the North-West Provinces, by artificial irrigation. He also held office as chief engineer for Burma. In 1883 his services were transferred to Egypt, where he acted as Under-Secretary of State Public Works at Cairo. There, where perhaps his best and most notable work was performed, his efforts were concentrated upon the more effective regulation of the existing water supply for purposes of irrigation, and during his tenure of office he carried out the restoration of the Great Nile Barrage—a difficult and tedious operation, which extended over a period of six years. A comprehensive review of his labours and of the difficulties which he encountered and overcame is to be found in a paper entitled "Irrigation in Egypt," which was published in the Professional Papers of the Corps of Royal Engineers in 1893. This paper is the substance of three lectures delivered by Col. Scott-Moncrieff before the Royal Engineers' Institute, and it contains much interesting information on the Nile and its treatment, particularly as regards the restoration and adaptation of the barrage, which was effected in circumstances of great discouragement and no little opposition. In 1892 he left Egypt for home, and for the next decade he was in office as Under-Secretary for Scotland. Then, at the beginning of the century, he returned to India to take up duty as president of the Indian Irrigation Commission, for which service he was rewarded, in 1903, with the K.C.S.I. He had previously, in 1887, been made K.C.M.G.

We regret to record the death of Sir Alexander R. Simpson, emeritus professor of midwifery in the University of Edinburgh. Although above eighty years of age, he was active both in mind and body, and it was on his way home from a meeting through the darkened streets that he was knocked down by a motor-car and received injuries from which he died shortly afterwards—on the night of Thursday, April 6. Born at Bathgate, West Lothian, in 1835, and receiving his early education at the local academy, Simpson went to the University of Edinburgh, and began the study of medicine in the apprenticeship days. He was apprenticed to John Goodsir, the anatomist, and amongst his other teachers was Syme. After his graduation he studied abroad at Montpelier and Berlin, acquiring, in addition to a widened knowledge of his profession, that facility in speaking French and German which made him such an admirable and acceptable representative of his University at many foreign congresses. On his return he for some years assisted his uncle, Sir J. Y. Simpson, then at the zenith of his fame, and after an interval of five years spent in practice in Glasgow, succeeded him in the chair of midwifery and the diseases of women and children in the University of Edinburgh. This chair he held for thirty-five years, 1870–1905. In 1906 he received the honour of knighthood. Simpson had a wide knowledge alike of the history, theory, and practice of his profession. He practically grew up with the modern science of gynæcology, and he was always awake to every new development of it, and familiar with everything of importance written upon it in all languages. His contributions to the literature of his department were numerous and valuable: many of them are collected in his "Contributions to Obstetrics and Gynecology." Sir Alex. Simpson took a wide and responsible view of his professorial functions, and interested himself in all that concerned the welfare of his students and the University. Lady Simpson predeceased him several years ago, and he is survived by four sons and a daughter.

The death is announced, at sixty-five years of age, of Sir Stafford Howard, K.C.B., formerly Commissioner of Woods and Forests, a post to which he was appointed in 1893, and retained until 1912. He was also an active member of the Afforestation Committee.

The *Nieuwe Courant* announces the death at the age of fifty-four, of Dr. H. P. Wijsman, formerly professor of pharmacy in the University of Leyden, and since 1908 extraordinary professor of the chemistry of foods and drugs at Utrecht. He was also secretary of the Colonial Institute of Amsterdam.

Science announces that the Avogadro medal has been awarded to Prof. H. N. Morse, of the Johns Hopkins University, for the most important contribution to molecular physics made since the meeting held in Turin in 1911, to celebrate the centennial of the announcement of the hypothesis of Avogadro.

Dr. David Hooper, formerly curator of the Economic and Art Sections of the Indian Museum at Calcutta, has been elected president of the British

Pharmaceutical Conference for the remainder of the current session, in succession to Major Peck, who has been compelled to resign in consequence of the increasing pressure of his military duties.

A series of popular lectures on "Our Tropical Industries," describing the production of rubber, tea, coffee, cocoa, sugar, etc., in the tropical colonies, and illustrated by the collections of the Imperial Institute, to be delivered by Miss Edith A. Browne, on Wednesdays in April, May and June, at the Imperial Institute, at three o'clock, commenced yesterday, April 12. Admission to the series of lectures will be free by ticket, for which application should be made to the director of the Imperial Institute, South Kensington.

The sixty-ninth annual meeting of the Palæontographical Society was held on March 31, Dr. Henry Woodward, president, in the chair. The council's report referred to the temporary diminution of the annual volume of monographs in existing circumstances, but noted that palæontological work was still being actively carried on, and would shortly be offered to the society to the normal extent. Dr. Henry Woodward was re-elected president; Dr. G. J. Hinde was elected a new vice-president; Mr. R. S. Herries was re-elected treasurer; Dr. A. Smith Woodward was re-elected secretary; and Miss Mary S. Johnston, Mr. H. L. Hawkins, and Mr. G. W. Young were elected members of council.

We regret to record the death of Mr. Henry Morgan, on April 3. A brief account of his career appears in *Engineering* for April 7. Mr. Morgan was born in 1834, and was trained in Sheerness Dockyard. After occupying responsible posts in the Royal Dockyards, he proceeded to the Admiralty in 1869, under Sir (then Mr.) Edward J. Reed. Mr. Morgan also served as chief constructor under Sir Nathaniel Barnaby and Sir William White. He retired in 1889, after twenty-five years' active service in the design of warships. He devoted much of his ability to the Institution of Naval Architects, and was a member of council from 1871.

Discussing the question of centralisation in military aeronautics, *Engineering* for April 7 considers that the true function of a central board would seem to be the collection and collation of facts, their transmission to those interested, and the preparation of general specifications, which, so far as practicable, should specify ends, rather than means. Any attempt to centralise design and experiment, and to discourage independent work, will necessarily imply restrictions on the initiation of many able men. A central board, operating with salaried officials, may, no doubt, conduct routine researches accurately and ably; but, in the opinion of our contemporary, a central organisation must not be looked to for important new departures in either science or industry.

According to the *Nieuwe Courant*, the Royal Academy of Sciences of Amsterdam has awarded the following grants from the Van't Hoff Research Fund: 640 francs to Prof. F. Ephraim, of Berne, for the continuation of his studies on the nature of subsidiary valencies; 600 guilders (£50) to Dr. P. E. Verkade, of Delft, for the purchase of apparatus for the determination of heats of combustion; 100 guilders to Dr. D. H. Wester, of The Hague, for a chemical examination of certain species of Loranthus; 200 guilders to Dr. C. H. Sluiter, of Vught, for the purchase of Beilstein's handbook and of materials for an investigation of formaldoxime; 400 marks to Prof. E. Jänecke, of Hannover, for the continuation of his work on melting and transition points under high pressures.

In the *Times* of April 4 Prof. W. C. McC. Lewis points out that the neglect of the science of chemistry in this country is due, not only to the public ignorance of the close connection existing between industry and the most abstruse forms of chemical research, but also to the miserably inadequate salaries paid to chemical assistants in university laboratories. In illustration of the former, he cites, amongst other cases, the work of the Corrosion Committee of the Institute of Metals, at Liverpool University, and the new process recently adopted by the War Office for the production of phenol. In mitigation of the latter, a plea is put forward for the establishment of a chemistry committee of the advisory committee on university grants, with an endowment of 30,000*l.* a year. Compared with the scheme proposed by Mr. C. A. Jacobson for the United States, and noticed in last week's Nature (p. 130), for the creation of a chemical research institute at a cost of one million pounds annually, this is modesty indeed.

The article on Zeppelins by M. Georges Prade, in the *Times* of March 25, has been followed by another on "The Newest Aeroplanes,' by the same author, in the issue of April 7. There being no outstanding aeroplane in the sense that the Zeppelin is an outstanding airship, the treatment is totally different, and becomes a general review of the functions and general characteristics of aeroplanes. It is said that the idea of building one aeroplane which shall combine in itself all the good qualities has proved to be Utopian, and attention is now directed to four types:—(1) Scouting aeroplanes; (2) artillery observation aeroplanes; (3) bomb-droppers; and (4) battle planes. Discussing the question of size, Mr. Prade says that "an aeroplane is too small when it does not even permit a machine-gun to be carried; an aeroplane becomes too large when its increase in power and surface is not accompanied by a proportionate increase in weight-lift capacity." This statement does not carry very far, and limits aeroplanes to quite moderate sizes. Amongst the classes mentioned above, it appears that the lightest is that of battle planes, and the largest the bomb-dropper, the former having a total weight of less than a ton, and the latter an unspecified but not large weight if the horse-power of 200 may be taken as a criterion.

In the last issue of the Journal of the Franklin Institute Dr. A. E. Kennelly suggests a scheme for the co-ordination of the work of American laboratories of applied science. There are now a considerable number of these laboratories, but in some cases the results of investigations are not published, and in others they are not sufficiently widely known. Moreover there is overlapping. "Each laboratory, as a rule, works for and in itself, as though it were the only one in the country. It is almost self-evident that the collective output would be improved, and the cause of engineering advanced, if these various laboratories could be co-ordinated, without imposing on them either hindering restrictions or burdensome expense." Dr. Kennelly therefore suggests that the Franklin Institute should take the initiative, in: (1) Giving publication, so far as it can, to the results reached in these laboratories. (2) Suggesting subjects for research to such laboratories as seem best suited for them. (3) Inviting subjects from the industries and grants for the expenses of research. (4) Encouraging mutual understanding between the laboratories. This matter also deserves consideration in the British Isles. Attempts are being made to promote unity of effort on the part of the chief scientific and technical societies, and the time seems ripe for a similar movement towards co-operation between the research staffs of the chief colleges and technical institutions.

Miss Margaret Murray contributes a very interesting paper to vol. xlv. of the Journal of the Royal Anthropological Institute, under the title of "Royal Marriages and Matrilineal Descent." She begins by quoting the well-known case of matrilineal descent in the kingdom of Travancore, and then proceeds to show that the same law prevailed under the Old and New Egyptian kingdoms, in the Ptolemaic period, and among the Hebrews in the time of David and of Solomon, the latter being reported by tradition to have gained possession of the kingdom of Sheba by marrying its Queen. She reaches more unfamiliar ground when she seeks to apply the same principle to the succession of the Roman Emperors. Not that indications of the same rule are wanting. Thus it is significant that Julius Cæsar, free to adopt whom he pleased, should have followed the same law of matrilineal descent by adopting Augustus, while something of the same kind may be gathered from the marriages of Octavia and Julia. So Caligula, son of Agrippina, succeeds Tiberius, who naturally wished his own son to succeed him, and there is some reason to believe that the circumstances surrounding the death of Messalina are only explicable by the custom of female inheritance and succession by right of marriage with the heiress. All this is very cleverly worked out, but the facts are not quite conclusive, and a further examination of the royal genealogies, so far as they can now be recovered, is needed before the theory can be fully established.

The *Psychological Bulletin* (vol. xiii., No. 2) reports the papers given at the meeting of the American Psychological Association. The range of subjects treated is very wide, and the detailed investigations are of considerable interest. M. F. Meyer describes a rare case of colour-blindness. It is customary to recognise two groups of two antagonistic colours each, red-green and blue-yellow, and writers on the subject give details of the corresponding forms of colour-blindness, in addition to total colour-blindness. The author of the article before us describes a case of a somewhat unique kind, the subject regarding blue and green as one colour, and red and yellow as another. For him the division point in the spectrum occurs in the yellowish-green region: on one side everything is one colour, which he calls indiscriminately either green or blue; on the other side everything is another colour, which he calls indifferently red or yellow. He has no need for the four names. The author suggests that at a time when only two chromas existed, Nature vacillated between one type of animals having the dividing point in the spectrum in the (normally) bluish-green region, and a second type having the dividing point in the yellowish-green region; ordinarily the former type has prevailed, but there is still a trace of the latter.

We have just received the report on Cetacea stranded on the British coasts during 1915. This is the third of its kind issued by the trustees of the British Museum, and prepared by Dr. S. F. Harmer, F.R.S., the keeper of the Zoological Department. Each of these reports not only adds to the value of its predecessor, but also emphasises the importance of this attempt to determine the precise character of the Cetacean fauna of our seas, and its seasonal migrations. Already it is clear that species hitherto supposed to be but rare and accidental visitors may prove to be, at any rate, annual visitors to our shores. This seems to be true, for example, of Cuvier's whale (*Ziphius cavirostris*), which, as Dr. Harmer has demonstrated, may easily be confused with the bottle-nosed whale (Hyperoodon), at any rate in the case of immature specimens. One of the two specimens recently acquired by the museum was at any rate thus mistaken. From the evidence in this report it would seem that Mesoplodon is represented in our seas by two, and perhaps three, species. Thus from a faunistic, as well as from an economic, point of view it is plain that the task which Dr. Harmer has set himself is one of extreme importance.

The Journal of the East Africa and Uganda Natural History Society (vol. v., No. 9) contains a paper by Mr. C. W. Hobley on the alleged desiccation of East Africa, which will be read with interest by anthropologists, as well as by those for whom it is more especially written. The author remarks that between Kismayu and Port Durnford there are said to be sixty miles of coast full of ruins, and, again, north of Port Durnford, there are innumerable ruins of stone buildings. No record remains of the builders, but they are commonly supposed to have been early Persian settlers. But the settlements seem to have been formed since the establishment of the Mahommedan religion, for there are numerous remains of well-built stone mosques, and myriads of stone graves of the Moslem type. The author is inclined to believe that they may date back to as far as Himyaritic times. In the Somali hinterland, in Juba-land, there are large numbers of artificial mounds, many as much as 30 ft. high, which are believed to be the funeral mounds of an extinct race. At the earliest opportunity these mounds should be explored.

The Journal of the Franklin Institute for February contains a useful survey of what is known in regard to the production of light by animals. This survey, which began with the January issue, and is not yet completed, is devoted to the coelenterates. Herein the phosphorescent discharge takes the form of granules mixed with mucin secreted by special cells of the epithelium. The discharged matter—luciferine—becomes luminous on coming into contact with the free oxygen contained in the sea-water. The author, Prof. U. Dahlgren, of Princeton University, cites a number of experiments made to determine the nature of the stimuli which produce luminescence, and these all show that light production is at its best at the optimum temperature at which the animals usually live. The eggs of ctenophores have often been said to emit light, but the author is unable to confirm this statement. The early segmentation stages, however, develop luminosity, and this increases in intensity from the gastrula stage onwards. Among the echinoderma, which, with the Mollusca, are reviewed in the March issue, luminescence has been demonstrated only in the "brittle-stars," or Ophiurids. It is exceedingly rare among the Mollusca. The author discusses at some length the well-known case of the pelagic Phyllirrhöe, and the remarkable instance of *Pholas dactylus*, which, though always buried, yet has large areas of the body provided with luminous glands. The light from these shines brightly when the animal is removed from its shell, but during life is manifested only by means of a mucous slime, discharged from the exhalant siphon, which alone is exposed to the outer world.

An extensive ecological study of the fauna of prairie and forest regions near Charleston, Illinois, has lately been published (Bull. Ill. State Lab. Nat. Hist., vol. xi., 2, 3), Dr. C. C. Adams describing the invertebrates and Mr. T. L. Hankinson the vertebrates. The regions dealt with seem to represent a remnant of the wild country of the State, now as a whole highly cultivated, and altered by human agency. The animals are divided into prairie and woodland dwellers, each with several groups of "associations," and the extensive series of photographs enables the reader to realise the nature of the localities described. Doubtless the invertebrates listed represent only a fraction of the fauna of the districts, but the authors may be congratulated on having collected so large an array of facts while wild areas are still at their disposal for study.

THE gram crop in India (*Cicer arietinum*) has occupied the attention of Mr. and Mrs. Howard and Mr. A. R. Khan at Pusa, and their results, which are of considerable scientific and economic value, are published in Memoirs of the Department of Agriculture in India, vol. vii., No. 6, for December, 1915. Gram is an important cold season food-grain in India, and some 18,000,000 acres are devoted to its cultivation every year. The best returns are obtained on light, high-lying, well-drained land, and in a wet season or on heavy land the yield is very considerably lessened. Another important factor is the time of sowing. Figures are given showing the root formation in relation to soil moisture, and the seed yield is found to be directly correlated with the root system, for when this is stunted, owing to too moist conditions, no seed is produced. Twenty-five types of gram have been bred at Pusa, and a careful classification of them is given in the paper. It is found that different types are suitable for different localities. The power to set seed, habit of growth, time of flowering, are all important features. The best type is a white gram, which in addition to this colour quality has given a yield of more than 20 maunds per acre.

IN no part of the world, not even in Japan, are the observations of earthquakes published on so lavish a scale as in Italy. As an instance of this, we have lately received the notices of earthquakes observed in that country during the year 1910. They form a volume of more than six hundred pages, which is issued as a supplement to the Bollettino for 1913 of the Italian Seismological Society. In it, Dr. G. Martinelli has collected the recorded observations of all local earthquakes, as well as those of external earthquakes which are registered instrumentally in Italy. Useful additions to the catalogue are lists of thirty-two Italian observatories with the constants of the different instruments which they contain, and of the epicentral regions of the stronger earthquakes. If we might offer two suggestions, it seems to us that the separation of the two classes of local and external earthquakes, and brief discussions of the materials collected for the more important local earthquakes, with maps, would add very greatly to the value of the catalogue.

AT the last meeting of the Illuminating Engineering Society the desirability of standardising the materials used in lighting glassware, and the sizes of chimneys, globes, reflectors, etc., was discussed. Letters from manufacturers were read pointing out that the multiplicity of shapes and sizes of glass was found to be a great drawback. A special problem is the production of "heat-resisting" glassware for globes used with high-pressure gas lamps, and other high-temperature illuminants. Other speakers remarked on the variations in quality met with in opal glass as regards absorption, uniformity of diffusion, and colour. Two special varieties of glass which particularly require standardisation are those used respectively for producing "artificial daylight" from various illuminants, and for neutral absorbing screens in photometry. Neutral-tinted glasses of guaranteed absorption cannot readily be obtained in this country, although they play an important part in many photometric and optical instruments. Several members of the Glass Research Committee of the Institute of Chemistry were present, and gave some particulars of the work of the Committee on laboratory and chemical glasses. In the course of the discussion it was suggested that the Illuminating Engineering Society should appoint a Committee on Lighting Glassware.

THE Netherlands Meteorological Institute has recently published the fourth and last part of the new edition of the oceanographical and meteorological observations in the Indian Ocean; the part comprises the months of March, April, and May from the observations for the years 1856–1912. Many of the observations are obtained from our English Meteorological Office and from other European weather offices. The results are published in a tabular form, in very great detail, and are grouped together in order of 10° ocean squares, and are subdivided into single-degree squares. Results are given for ocean currents, winds, barometer, air and sea temperatures, cloud, mist, rain, and hail. Charts are published in a separate volume, giving in a graphical form the general circulation of winds and currents, and the isobars, and isotherms, of air and sea, together with the general trade routes. The number of observations available for each element is given, so that the value of the results can be estimated, and for several of the elements more than a million observations have been used for the year. This work of the Dutch Meteorological Institute formed the subject for discussion on Monday, March 13, at the Meteorological Office, at South Kensington, the discussion being opened by Admiral Farquhar.

"THE Spread of Tuberculosis," by Dr. L. Cobbett, is in the press for publication in the "Cambridge Public Health" series (*Cambridge University Press*). The following works are in preparation for inclusion in the same series:—"Ticks as Carriers of Disease," Prof. G. H. F. Nuttall; "Serum Diagnoses," Dr. C. Browning; "The Purification of Water in Sedimentation, Filtration, and Precipitation," Dr. A. C. Houston; "The Purification of Water by Ozone and Chlorine; and Domestic Filters," Prof. G. Sims Woodhead; "The Principles and Practice of the Dilution Method of Sewage Disposal," Dr. W. E. Adeney; "Disinfection," Dr. C. W. Ponder; "Housing in Relation to Public Health," Dr. C. J. Coleman; "School Hygiene," Dr. E. T. Roberts; "Soils, Subsoils, and Climate in Relation to Health," G. Walker; "Meat Inspection," Dr. W. J. Howarth and T. D. Young; "Vital Statistics," R. Dudfield and G. U. Yule; and "Foods, Sound and Unsound," Dr. H. C. Haslam. For the "Cambridge Farm Institute" series the following are in preparation:—"Plant Life in Farm and Garden," Prof. R. H. Biffen; "The Feeding of Farm Animals," Prof. T. B. Wood, and "Common Fungus and Insect Foes," F. R. Petherbridge, and for the series of "Cambridge Agricultural Monographs":—"Poisonous Plants," H. C. Long: "The Strength of Wheat Flour," Prof. T. B. Wood; "The Constitution of the Soil," Dr. E. J. Russell; and "Disease Resistance," Prof. R. H. Biffen.